

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Period: \_\_\_\_\_

## Using the Rules to Combine Like Terms

### Using the Opposite

The opposite of  $b$  is  $-b$ .

The opposite of  $-x$  is  $-(-x)=+x$

### Using the Definition of Subtraction

$$a - b = a + (-b)$$

Find the opposite of: 1. 5 2. $-7$ 3. $5x$ 4. $3x - 4$ 5. $2x + (-9)$	Write the subtraction expressions as addition: Ex: $3x - 4 = 3x + (-4)$ 6. $7 - x$ 7. $-(3x - 10)$ 8. $3x - (x + 10)$ Hint: $a = 3x$ and $b = (x + 10)$
--	--

### Using Distributive Property

$$a \cdot (b + c) = a \cdot b + a \cdot c$$

$$a \cdot (b - c) = a \cdot b - a \cdot c$$

Ex: $7(x + 3) = 7 \cdot x + 7 \cdot 3$ $= 7x + 21$	Ex: $4(2x - 8) = 4 \cdot 2x - 4 \cdot 8$ $= 8x - 32$
---	---

### Using all three rules in combination

$$7x - 3(5x - 4y)$$

$$7x + 3(-5x + 4y) \quad \text{Opposite: change minus sign to +, then change signs in the parenthesis ( ).}$$

$$7x + 3 \cdot (-5x) + 3 \cdot 4y \quad \text{Distributive Property, use parenthesis with negative terms.}$$

$$7x + (-15x) + 12y \quad \text{Combine like terms}$$

$$-8x + 12y \quad \text{Answer with the solution above.}$$

Exercises:

1. $7(x+3)+5(-3+2x)$	6. $-3(4x+5y)+2(8x-2y)-4$
2. $4(3x-5)$	7. $6x+7xy+3x(2y-5)$
3. $-3(4x+5y)+2(8x-2y)-4$	8. $-2[3(x-1)]+2(-x-3)$
4. $4(x^2+2x)-x(x-3)$	9. $xy(3x-5)-2y(y+7x)$